```
FFFFFFFFFFFFFFF    000000000   RRRRRRRRRRRR    RRRRRRRRRRRR    TTTTTTTTTTTTTTT  LLL
FFFFFFFFFFFFFFF    000000000   RRRRRRRRRRRR    RRRRRRRRRRRR    TTTTTTTTTTTTTTT  LLL
FFFFFFFFFFFFFFF    000000000   RRRRRRRRRRRR    RRRRRRRRRRRR    TTTTTTTTTTTTTTT  LLL
FFF            000       000   RRR       RRR   RRR       RRR        TTT         LLL
FFF            000       000   RRR       RRR   RRR       RRR        TTT         LLL
FFF            000       000   RRR       RRR   RRR       RRR        TTT         LLL
FFF            000       000   RRR       RRR   RRR       RRR        TTT         LLL
FFF            000       000   RRR       RRR   RRR       RRR        TTT         LLL
FFFFFFFFFFF    000       000   RRRRRRRRRRR     RRRRRRRRRRR         TTT          LLL
FFFFFFFFFFF    000       000   RRRRRRRRRRR     RRRRRRRRRRR         TTT          LLL
FFFFFFFFFFF    000       000   RRRRRRRRRRR     RRRRRRRRRRR         TTT          LLL
FFF            000       000   RRR  RRR        RRR  RRR            TTT          LLL
FFF            000       000   RRR   RRR       RRR   RRR           TTT          LLL
FFF            000       000   RRR    RRR      RRR    RRR          TTT          LLL
FFF            000       000   RRR      RRR    RRR      RRR        TTT          LLL
FFF            000       000   RRR       RRR   RRR       RRR       TTT          LLL
FFF            000       000   RRR        RRR  RRR        RRR      TTT          LLL
FFF               000000000    RRR         RRR RRR         RRR     TTT     LLLLLLLLLLLLLLL
FFF               000000000    RRR          RRR RRR          RRR   TTT     LLLLLLLLLLLLLLL
FFF               000000000    RRR          RRR RRR          RRR   TTT     LLLLLLLLLLLLLLL
```

FILEID**FORENCOMO

```
FFFFFFFFFF    OOOOOO   RRRRRRR   EEEEEEEEEE  NN      NN  CCCCCCCC   OOOOOO   MM       MM   OOOOOO
FFFFFFFFFF    OOOOOO   RRRRRRRR  EEEEEEEEEE  NN      NN  CCCCCCCC   OOOOOO   MM       MM   OOOOOO
FF           OO    OO  RR    RR  EE          NN      NN  CC        OO    OO  MMMM   MMMM  OO    OO
FF           OO    OO  RR    RR  EE          NN      NN  CC        OO    OO  MMMM   MMMM  OO    OO
FF           OO    OO  RR    RR  EE          NNNN    NN  CC        OO    OO  MM  MM MM MM  OO    OO
FF           OO    OO  RR    RR  EE          NNNN    NN  CC        OO    OO  MM  MM MM MM  OO    OO
FFFFFFFF     OO    OO  RRRRRRR   EEEEEEEE    NN  NN  NN  CC        OO    OO  MM       MM   OO    OO
FFFFFFFF     OO    OO  RRRRRRR   EEEEEEEE    NN  NN  NN  CC        OO    OO  MM       MM   OO    OO
FF           OO    OO  RR  RR    EE          NN    NNNN  CC        OO    OO  MM       MM   OO    OO
FF           OO    OO  RR  RR    EE          NN    NNNN  CC        OO    OO  MM       MM   OO    OO
FF           OO    OO  RR    RR  EE          NN      NN  CC        OO    OO  MM       MM   OO    OO
FF           OO    OO  RR    RR  EE          NN      NN  CC        OO    OO  MM       MM   OO    OO     ....
FF           OOOOOO    RR     RR EEEEEEEEEE  NN      NN  CCCCCCCC   OOOOOO   MM       MM   OOOOOO       ....
FF           OOOOOO    RR     RR EEEEEEEEEE  NN      NN  CCCCCCCC   OOOOOO   MM       MM   OOOOOO       ....

LL           IIIIII    SSSSSSSS
LL           IIIIII    SSSSSSSS
LL             II    SS
LL             II    SS
LL             II    SS
LL             II    SS
LL             II       SSSSSS
LL             II       SSSSSS
LL             II            SS
LL             II            SS
LL             II            SS
LL             II            SS
LLLLLLLLLL   IIIIII    SSSSSSSS
LLLLLLLLLL   IIIIII    SSSSSSSS
```

```
0000      1          .TITLE  FOR$ENCODE_MO - entry point for FORTRAN ENCODE OBJECT-FORMATTED
0000      2          .IDENT  /1-011/        File: FORENCOMO.MAR  Edit: JAW1011
0000      3  ;
0000      4  ;****************************************************************************
0000      5  ;*                                                                          *
0000      6  ;*  COPYRIGHT (c) 1978, 1980, 1982, 1984 BY                                 *
0000      7  ;*  DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS.                  *
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0000     14  ;*  OTHER PERSON.  NO TITLE TO AND OWNERSHIP OF  THE  SOFTWARE IS  HEREBY   *
0000     15  ;*  TRANSFERRED.                                                            *
0000     16  ;*                                                                          *
0000     17  ;*  THE INFORMATION IN THIS SOFTWARE IS  SUBJECT TO CHANGE WITHOUT NOTICE   *
0000     18  ;*  AND  SHOULD  NOT  BE  CONSTRUED AS  A COMMITMENT BY DIGITAL EQUIPMENT   *
0000     19  ;*  CORPORATION.                                                            *
0000     20  ;*                                                                          *
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0000     22  ;*  SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.                 *
0000     23  ;*                                                                          *
0000     24  ;*                                                                          *
0000     25  ;****************************************************************************
0000     26  ;
0000     27  ;
0000     28  ;++
0000     29  ; FACILITY: FORTRAN Support Library - user callable
0000     30  ;
0000     31  ; ABSTRACT:
0000     32  ;
0000     33  ;       This module contains the entry point for the FORTRAN
0000     34  ;       ENCODE OBJECT-FORMATTED I/O statement.  It is simply
0000     35  ;       a call to FOR$$IO_BEG with bits in R0 which describe the
0000     36  ;       parameter list.  FOR$$IO_BEG interprets the parameters.
0000     37  ;
0000     38  ; MAINTENANCE NOTE:
0000     39  ;       The transfer vector (RTLVECTOR+ALLGBL) must have the following:
0000     40  ;
0000     41  ;       .TRANSFER       FOR$ENCODE_MO
0000     42  ;       .MASK           FOR$$IO_BEG
0000     43  ;       BRW             FOR$ENCODE_MO+2
0000     44  ;
0000     45  ;       This puts the correct mask in entry vector, that is FOR$$IO_BEG entry mask.
0000     46  ;       Furthermore this module must only use R0 and R1
0000     47  ;       since any other register might not be in the entry mask for FOR$$IO_BEG.
0000     48  ;
0000     49  ; ENVIRONMENT: User access mode; mixture of AST level or not
0000     50  ;
0000     51  ; AUTHOR:         Richard B. Grove, CREATION DATE: 28-May-78
0000     52  ;
0000     53  ; MODIFIED BY:
0000     54  ;       T. Hastings, 29-July-78
```

```
0000    56                    .SBTTL  HISTORY          ; Detailed Current Edit History
0000    57
0000    58
0000    59  ; Edit History for Version 1
0000    60  ;
0000    61  ; 0-10  - Add comment about vectors.  TNH 23-June-78
0000    62  ; 0-12  - Pass arg in R0, not ROR, add comments.  TNH 29-July-78
0000    63  ; 1-001 - Update version number and copyright notice.  JBS 16-NOV-78
0000    64  ; 1-002 - Change statement type symbols to be LUB$K...  JBS 07-DEC-78
0000    65  ; 1-003 - Change statement type symbols to be ISB$K...  JBS 11-DEC-78
0000    66  ; 1-004 - Add "" to the PSECT directive.  JBS 22-DEC-78
0000    67  ; 1-005 - Add FOR$READ_KF, FOR$READ_KO, FOR$REWRITE_SF, FOR$REWRITE_SO,
0000    68  ;           FOR$READ_IF, FOR$READ_IO, FOR$WRITE_IF, FOR$WRITE_IO,
0000    69  ;           FOR$READ_KU, FOR$REWRITE_SU,
0000    70  ;           SBL 2-May-1979
0000    71  ; 1-006 - Remove all entry points that need object time formatting,
0000    72  ;           putting them in FOR$ENTRY_OBJ so that we can arrange to
0000    73  ;           load the format compiler only when it is needed.
0000    74  ;           JBS 26-JUN-1979
0000    75  ; 1-007 - Remove entry point FOR$ENCODE_MF; we will code a new module
0000    76  ;           for it and FOR$$IO_BEG, to see how much I/O initiation time
0000    77  ;           improves.  JBS 02-JUL-1979
0000    78  ; 1-008 - Do likewuse for FOR$READ_DU and FOR$WRITE_DU.  JBS 03-JUL-1979
0000    79  ; 1-009 - Remove all entry points and add FOR$ENCODE_MO;  each entry
0000    80  ;           point gets its own module do we can selectively load
0000    81  ;           the necessary UDF and REC modules.  JBS 09-JUL-1979
0000    82  ; 1-010 - New parameter format for FOR$$IO_BEG.  SBL 5-Dec-1979
0000    83  ; 1-011 - Change BRW FOR$$IO_BEG+2 to JMP G^FOR$$IO_BEG+2.  JAW 21-Feb-1981
```

FOR$ENCODE_MO   - entry point for FORTRAN ENCODE OBJECT- 15-SEP-1984 23:51:52   VAX/VMS Macro V04-00   Page   3
1-011   DECLARATIONS   6-SEP-1984 10:55:04   [FORRTL.SRC]FORENCOMO.MAR;1   (3)

E 3

```
0000      85              .SBTTL  DECLARATIONS
0000      86
0000      87  ;
0000      88  ; INCLUDE FILES:
0000      89  ;
0000      90
0000      91          $FORPAR                                 ; Define inter-module FORTRAN symbols
0000      92          $ISBDEF                                 ; Define statement type symbols
0000      93
0000      94  ;
0000      95  ; EXTERNAL SYMBOLS:
0000      96  ;
0000      97
0000      98          .DSABL  GBL                             ; Declare all external symbols
0000      99          .EXTRN  FOR$$IO_BEG                     ; common I/O statement processing
0000     100  ;+
0000     101  ; The following references are to make sure the necessary UDF and REC
0000     102  ; modules are loaded.  These are the routines which are called through
0000     103  ; the dispatch tables in FOR$$DISPAT.
0000     104  ;-
0000     105          .EXTRN  FOR$$UDF_WF0, FOR$$UDF_WF1, FOR$$UDF_WF9
0000     106          .EXTRN  FOR$$REC_WMF0, FOR$$REC_WMF1, FOR$$REC_WMF9
0000     107  ;+
0000     108  ; The following reference makes sure the format compiler is loaded.
0000     109  ;-
0000     110          .EXTRN  FOR$$FMT_COMPIL
0000     111
0000     112  ;
0000     113  ; MACROS:
0000     114  ;
0000     115  ;     NONE
0000     116
0000     117  ; PSECT DECLARATIONS:
0000     118  ;
0000     119
00000000 120          .PSECT  _FOR$CODE PIC,USR,CON,REL,LCL,SHR,EXE,RD,NOWRT,LONG
0000     121
0000     122  ;
0000     123  ; EQUATED SYMBOLS:
0000     124  ;
0000     125
0000     126
0000     127  ;
0000     128  ; OWN STORAGE:
0000     129  ;
0000     130  ;     NONE
0000     131  ;
```

```
0000    133              .SBTTL  FOR$ENCODE_MO - ENCODE OBJECT-FORMATTED
0000    134
0000    135      ;++
0000    136      ; FUNCTIONAL DESCRIPTION:
0000    137      ;
0000    138      ;       Initialize the FORTRAN I/O system to perform
0000    139      ;       a ENCODE OBJECT-FORMATTED I/O statement.
0000    140      ;
0000    141      ; CALLING SEQUENCE:
0000    142      ;
0000    143      ;       CALL FOR$ENCODE_MO (char_cnt.rlu.v, format_adr.rt.r, usr_buf_adr.wt.ra
0000    144      ;               [, err_adr.j.r [, end_adr.j.r]])
0000    145      ;
0000    146      ; INPUT PARAMETERS:
0000    147      ;
0000    148      ;       unit.rl.v                  logical unit number
0000    149      ;       format_adr.rt.r            format string (needs compilation)
0000    150      ;       usr_buf_adr.wt.ra          adr. of user's buffer
0000    151      ;       [err_adr.j.r]              optional ERR= address
0000    152      ;       [end_adr.j.r]              optional END= address
0000    153      ;
0000    154      ; IMPLICIT INPUTS:
0000    155      ;
0000    156      ;       NONE except those used by FOR$$IO_BEG.
0000    157      ;
0000    158      ; OUTPUT PARAMETERS:
0000    159      ;
0000    160      ;       NONE
0000    161      ;
0000    162      ; IMPLICIT OUTPUTS:
0000    163      ;
0000    164      ;       NONE except those left by FOR$$IO_BEG.
0000    165      ;
0000    166      ; COMPLETION CODES:
0000    167      ;
0000    168      ;       NONE
0000    169      ;
0000    170      ; SIDE EFFECTS:
0000    171      ;
0000    172      ;       NONE except those of FOR$$IO_BEG.
0000    173      ;
0000    174      ;--
0000    175
              0000'  0000    176  FOR$ENCODE_MO::  .MASK   FOR$$IO_BEG
50    010B 8F   3C   0002    177           MOVZWL  #ISB$K_ST_TY_WMF+          -
                         0007    178                   <1@FOR$V_OBJ_FMT>, R0  ; Statement type
   00000002'GF   17   0007    179           JMP     G^FOR$$IO_BEG+2           ; branch past call mask
                    000D    180
                    000D    181
                    000D    182           .END
```

G 3

FOR$ENCODE_MO   - entry point for FORTRAN ENCODE OBJECT- 15-SEP-1984 23:51:52   VAX/VMS Macro V04-00   Page   5
Symbol table   6-SEP-1984 10:55:04   [FORRTL.SRC]FORENCOMO.MAR;1   (4)

```
FOR$$FMT_COMPIL                     ********  X   00
FOR$$IO_BEG                         ********  X   00
FOR$$REC_WMF0                       ********  X   00
FOR$$REC_WMF1                       ********  X   00
FOR$$REC_WMF9                       ********  X   00
FOR$$UDF_WF0                        ********  X   00
FOR$$UDF_WF1                        ********  X   00
FOR$$UDF_WF9                        ********  X   00
FOR$ENCODE_MO                       00000000 RG   01
FOR$V_OBJ_FMT                     = 00000008
ISB$K_ST_TY_WMF                   = 0000000B
```

+-------------------+
! Psect synopsis !
+-------------------+

PSECT name	Allocation		PSECT No.	Attributes										
. ABS .	00000000 (	0.)	00 (0.)	NOPIC	USR	CON	ABS	LCL	NOSHR	NOEXE	NORD	NOWRT	NOVEC	BYTE
_FOR$CODE	0000000D (	13.)	01 (1.)	PIC	USR	CON	REL	LCL	SHR	EXE	RD	NOWRT	NOVEC	LONG

+---------------------------+
! Performance indicators !
+---------------------------+

Phase	Page faults	CPU Time	Elapsed Time
Initialization	29	00:00:00.08	00:00:00.51
Command processing	118	00:00:00.63	00:00:03.98
Pass 1	128	00:00:01.27	00:00:04.92
Symbol table sort	0	00:00:00.19	00:00:00.33
Pass 2	56	00:00:00.53	00:00:01.97
Symbol table output	3	00:00:00.02	00:00:00.06
Psect synopsis output	2	00:00:00.02	00:00:00.05
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	338	00:00:02.75	00:00:11.82

The working set limit was 1050 pages.
6710 bytes (14 pages) of virtual memory were used to buffer the intermediate code.
There were 20 pages of symbol table space allocated to hold 188 non-local and 0 local symbols.
182 source lines were read in Pass 1, producing 8 object records in Pass 2.
9 pages of virtual memory were used to define 2 macros.

+-----------------------------+
! Macro library statistics !
+-----------------------------+

Macro library name	Macros defined
_255DUA28:[FORRTL.OBJ]FORRTL.MLB;1	2
_255DUA28:[SYSLIB]STARLET.MLB;2	0
TOTALS (all libraries)	2

183 GETS were required to define 2 macros.

There were no errors, warnings or information messages.

H 3

FOR$ENCODE_MO   - entry point for FORTRAN ENCODE OBJECT- 15-SEP-1984 23:51:52   VAX/VMS Macro V04-00   Page   6
VAX-11 Macro Run Statistics   6-SEP-1984 10:55:04   [FORRTL.SRC]FORENCOMO.MAR;1   (4)

MACRO/ENABLE=SUPPRESSION/DISABLE=(GLOBAL,TRACEBACK)/LIS=LIS$:FORENCOMO/OBJ=OBJ$:FORENCOMO MSRC$:FORENCOMO/UPDATE=(ENH$:FORENCOMO)+LI

FORFIND
LIS

FORFMTINT
LIS

FOREXITHA
LIS

FORENODEF
LIS

FORENCOMF
LIS

FORIDATE
LIS

FORENDFIL
LIS

FORERRSNS
LIS

FOREXIT
LIS

FORERROR
LIS

FORFMTCP
LIS

FORENCOMO
LIS

FORINIDES
LIS